DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/19/09 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 71, and 37-47 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 71 recites the limitation "the nut" in the body of the claim. There is insufficient antecedent basis for this limitation in the claim.

5. Claim 71 further recites, “urge the outer surface of said panel against the outer sidewall of said panel joining member the nut and the panel joining member is operating to lock the nut against the inner sidewall of the panel joining member.” The meaning of

the limitation is irreconcilable. It appears the limitation lacks a line break, comma or semi-colon between "said panel joining member" and "the nut".

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

7. Claims 50, 52, 56, 57, and 72 rejected under 35 U.S.C. 102(b) as being anticipated by Konig, US 3,675,954.

Regarding claim 72:

'954 discloses a panel joining assembly, comprising:

a panel joining member having at least one pair of opposed, spaced-apart inner and outer sidewalls which define therebetween a panel-receiving cavity for receipt therein of a panel having a fastener-receiving cavity formed therein, the open end of the fastener-receiving cavity including an aperture capable of receiving a nut said inner sidewall of said panel joining member having an aperture formed therethrough, and at least one stop member formed on at least one of said sidewalls of said panel joining member, adjacent to said panel-receiving cavity against which a panel abuts when fully inserted into said panel-receiving cavity; and

at least one fastener assembly comprising a fastener and a receiver, said receiver disposed within said fastener-receiving cavity and said fastener removably insertable through said aperture of said inner sidewall of said panel

joining member capable of being screwed into the nut and into said receiver in said fastener-receiving cavity of a panel to urge said receiver to engage said panel and, in turn, urge said panel against the outer sidewall of said panel joining member.

Regarding claim 50:

'954 discloses claim 72, wherein the receiver of the fastener assembly is secured within a panel along a selected panel end for inserting into a panel-receiving cavity (see Fig. 7).

Regarding claim 52:

'954 discloses claim 72, wherein the receiver comprises a body adapted for engagement with a panel, the body including an open mouthed recess capable of receiving a fastener.

Regarding claim 56:

'954 discloses claim 72, wherein the panel joining member includes a chamfered edge (see Fig. 7, note that the edges are chamfered with an inward slope).

Regarding claim 57:

'954 discloses claim 72, wherein the fastener is a screw having a flat ended shank (see Fig. 7).

Claim Rejections - 35 USC § 103

8. Claims 41-42, 50, 52, 57, 67, 70-72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hughes, FR 2,207,544 in view of Wolfe, US 6,119,410.

Regarding claims 70 and 67:

'544 discloses a panel joint, comprising:

a panel (see Fig. 1) having an inner surface, an outer surface, at least one end and a fastener-receiving cavity formed within said panel which opens onto said inner surface, generally adjacent to said one end of said panel;

a panel joining member (3) having opposed, spaced-apart inner and outer sidewalls which define therebetween a panel-receiving cavity for receipt therein of said one end of said panel, said inner sidewall of said panel joining member having an aperture formed therethrough which is positioned to align with said fastener-receiving cavity when said one end of said panel is received with said panel-receiving cavity; and

a screw-threaded fastener removably insertable through said aperture of said inner sidewall of said panel joining member and into said fastener-receiving cavity capable of enabling said fastener to engage said panel and urge the outer surface of said panel against the outer sidewall of said panel joining member, said fastener-receiving cavity including an aperture to receive a nut into which said fastener can be screwed, the panel joining member and the nut cooperatively engaging to lock the nut against the inner sidewall of the panel joining member.

'544 does not expressly disclose wherein at least one stop member is formed on said panel joining member adjacent to said panel-receiving cavity against which said one end of said panel abuts when fully inserted into said panel-receiving cavity.

'410 discloses at least one stop member as claimed (153, 154, see Fig. 1A).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to provide a stop member as taught by '410 to the panel joining member of '544 in order to ensure alignment of the panel joining member apertures and the panel apertures for insertion of the fastener.

Regarding claims 71 and 40:

'544 discloses a method of connecting a panel joining member employing a panel assembly of the type comprising, a panel having an inner surface, an outer surface, and at least one end, a panel joining member having opposed, spaced-apart inner and outer sidewalls which define therebetween a panel-receiving cavity, said inner sidewall of said panel joining member having an aperture formed therethrough, and a screw-threaded fastener, the method comprising the steps of:

forming a fastener-receiving cavity within said panel which opens onto said inner surface, generally adjacent to said one end of said panel;

forming an aperture in the open end of the fastener receiving cavity and inserting said one end of said panel into said panel-receiving cavity of said panel joining member;

aligning said fastener-receiving cavity of said panel with said aperture of said inner sidewall of said panel joining member; and

inserting said fastener through said aperture of said inner sidewall of said panel joining member and screwing the fastener into a nut and into said fastener-receiving cavity of said panel to enable said fastener to engage said panel and urge the outer surface of said panel against the outer sidewall of said panel joining member the nut and the panel joining member the nut and the panel joining member is operating to lock the nut against the inner sidewall of the panel joining member.

'544 does not discloses at least one stop member formed on said panel joining member adjacent to said panel-receiving cavity, and abutting one end of said panel against said one stop member.

'410 discloses at least one stop member as claimed (153, 154, see Fig. 1A).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to provide a stop member as taught by '410 to the panel joining member of '544 in order to ensure alignment of the panel joining member apertures and the panel apertures for insertion of the fastener.

Regarding claim 41:

'544 discloses claim 71, wherein the fastener has a screw-thread to engage at least one of said panel and said panel joining member.

Regarding claim 42:

'544 discloses claim 37, wherein the receiver is an adapter, the adapter having a shape complementary to that of the fastener-receiving cavity.

9. Claim 63 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hughes, FR 2,207,544 in view of Wolfe, US 6,119,410 and further in view of Hirath et al., USPA 2002/0100250.

Regarding claim 63:

'544 discloses claim 62, but does not expressly disclose wherein the joint includes adhesive between the panel and at least one wall of the joining member.

'250 discloses the use of adhesive (para 0007) to secure an outer casing (13) to the sides of a joining member (25, see Fig. 3).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use adhesive as taught by '250 for the joint of '544.

The motivation to combine would have been to provide a vacuum seal between the panel and the connecting member.

10. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hughes, FR 2,207,544.

Regarding claim 40:

'765 discloses claim 71, but does not expressly disclose wherein the fastener is an expanding rivet fastener to enable engaging the panel tightly.

Examiner takes official notice that it is old and well known to use expanding rivet fasteners to connect disparate articles.

Furthermore, rivets and screws are recognized as equivalent mechanical fasteners as they perform substantially the same function.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have replaced screws in '765 with expanding rivet fasteners as no extraordinary or unexpected results would be accomplished.

The motivation to replace would have been to provide for a tighter connection that can be more quickly attached.

11. Claims 49, 51-53, and 72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Richards, US 3,885,765 in view of Neuschotz, US 3,451,181. Regarding claim 72:

'765 discloses a panel joining assembly, comprising: a panel joining member (10) having at least one pair of opposed, spaced-apart inner and outer sidewalls (13-16) which define therebetween a panel-receiving cavity for receipt therein of a panel having a fastener-receiving cavity (11-12) formed therein, the open end of the fastener-receiving cavity including an aperture capable of receiving a nut said inner sidewall of said panel joining member having an

aperture (19) formed therethrough, and at least one stop member (at the base of the cavity) formed on at least one of said sidewalls (note that the stop extends inwardly from the outer wall) of said panel joining member, adjacent to said panel-receiving cavity against which a panel abuts when fully inserted into said panel-receiving cavity; and at least one fastener assembly comprising a fastener (20) and said fastener removably capable of being inserted through said aperture of said inner sidewall of said panel joining member able to be screwed into the nut and into a receiver in said fastener-receiving cavity of a panel to urge said receiver to engage said panel and, in turn, urge said panel against the outer sidewall of said panel joining member.

'765 does not expressly disclose wherein the assembly includes a receiver (18), said receiver disposed within said fastener-receiving cavity.

'181 discloses a receiver disposed within a fastener-receiving cavity.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to insert a receiver within a fastener-receiving cavity.

The motivation to insert a receiver would have been to assure transmission of load forces in an effective manner between a fastener and a panel to preserve the strength of the connection.

Regarding claim 49:

'765 in view of '181 discloses claim 72, and '765 further discloses wherein two panel-receiving cavities subtend an angle of less than 180° and the fastener aperture is located in the internal wall of the panel joining member (see Fig. 2).

Regarding claim 51:

'765 in view of '181 discloses claim 49, and '181 further discloses wherein the receiver of the fastener assembly is secured within a panel along a selected panel end capable of use for insertion into a panel-receiving cavity.

Regarding claim 52:

'765 in view of '181 discloses claim 72, and '181 further discloses wherein the receiver comprises a body adapted for engagement with a panel, the body include an open mouth recess for receiving a fastener.

Regarding claim 53:

'765 in view of '181 discloses claim 52, and '181 discloses wherein the receiver narrows away from the open mouth (see Fig. 1).

The motivation to have the receiver narrow away from the open mouth would have been to ease the entry of a fastener therein and provide for a reasonable error tolerance in alignment of the fastener.

12. Claims 54 and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Richards, US 3,885,765 in view of Neuschotz, US 3,451,181 as applied to claim 72 above, and further in view of Hudock, USP 3,866,373.

Regarding claims 54 and 55:

'765 in view of '181 discloses claim 72, but does not expressly disclose wherein opposing walls of the panel joining member are inclined together at an angle of up to 5 degrees and wherein the angles is between 0.7 and 2 degrees.

'373 discloses a panel channel wherein the walls are inclined together.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the inclined walls of '373 for the channels of '646.

The motivation to combine would have been to provide for a compressive fit.

'373 does not expressly disclose wherein the angle is less than 5 degrees and more specifically between 0.7 and 2 degrees.

It would have been obvious to one having ordinary skill in the art at the time the invention was made, to contrive any number of desirable ranges for the inclination angle limitation disclosed by Applicant, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. Further, it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. Refer to MPEP § 2144.05.

13. Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hughes, FR 2,207,544 in view of Wolfe, US 6,119,410 further in view of Eschbach et al., US 3,866,381.

'544 discloses claim 71, but does not expressly disclose claim 45.

'381 discloses wherein a panel includes at least one projection to engage a corresponding recess in a panel joining member thereby forming a push-fit type joint.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to provide a projection to the panel of '544 in order to provide for a push type joint between the panel and the joining member.

14. Claims 46 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hughes, FR 2,207,544 in view of Wolfe, US 6,119,410 and further in view of Hudock, USP 3,866,373.

Regarding claims 46 and 47:

'544 discloses claim 36, but does not expressly disclose wherein opposing walls of the panel joining member are inclined together at an angle of up to 5 degrees and wherein the angles is between 0.7 and 2 degrees.

'373 discloses a panel channel wherein the walls are inclined together.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the inclined walls of '373 for the channels of '544.

The motivation to combine would have been to provide for a compressive fit.

'373 does not expressly disclose wherein the angle is less than 5 degrees and more specifically between 0.7 and 2 degrees.

It would have been obvious to one having ordinary skill in the art at the time the invention was made, to contrive any number of desirable ranges for the inclination angle limitation disclosed by Applicant, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering

the optimum or workable ranges involves only routine skill in the art. Further, it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. Refer to MPEP § 2144.05.

Allowable Subject Matter

15. Claims 58-61, 64-66 and 69 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

16. Claims 37-39 and 43-44 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

17. The following is a statement of reasons for the indication of allowable subject matter:

a. With regards to claims 37-39, 58-61, and 64-66 the primary reason for indicating allowability is an adapter/receiver for insertion in the fastener-receiving cavity in combination with a nut.

b. With regards to claims 43 and 44, the primary reason for indicating allowability is wherein the fastener receiving cavity has an open end and narrows away from said open end in combination with a nut.

c. With regards to claim 69, the primary reason for indicating allowability is wherein the fastener is along an axis which is at an angle inclined to the axis perpendicular to the surface of the panel in combination with a nut.

Response to Arguments

18. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

19. Applicant's arguments with respect to the prior art rejections of claims 72, and 49-57 are non-persuasive. The claims have been amended to recite a functional recitation with respect to the nut. The prior art of Richards is capable of receiving a nut in the cavity.

Conclusion

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRENT W. HERRING whose telephone number is (571)270-3661. The examiner can normally be reached on Monday-Thursday, 8:00AM-5:30PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Dunn can be reached on (571)272-6670. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/B. W. H./
Examiner, Art Unit 3633

/Robert J Canfield/
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